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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------|------------------|
| 10/663,366 | 09/15/2003 | Ronald Kuse | 10559/858001/P17306/Intel | 1642 |
| 20985 | 7590 | 04/18/2007 | EXAMINER | |
| FISH & RICHARDSON, PC | | | BUEKER, RICHARD R | |
| P.O. BOX 1022 | | | ART UNIT | PAPER NUMBER |
| MINNEAPOLIS, MN 55440-1022 | | | 1763 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 04/18/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | |
|------------------------------|-----------------------------------|-------------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/663,366 | KUSE, RONALD |
| | Examiner Richard Bueker | Art Unit 1763 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 January 2007.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-15 and 23-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-15 and 23-32 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ . |

Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, line 6, the phrase "the gas inside the variable volume chamber" is indefinite because it lacks proper antecedent basis.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 13-15, 23-26, 29-32 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mardian (6,787,463). Mardian (see Figs. 1-6) discloses a semiconductor processing system (see col. 1, lines 20-23 and col. 4, lines 3-14, for example) comprising a variable volume chamber (20 of Fig. 1, for example) to provide a gas consumed in a semiconductor process, wherein the variable volume chamber is provided with a pressure controller to apply force to the variable volume chamber to regulate the pressure of the gas inside the variable volume chamber. Mardian (see the sentence bridging cols. 3 and 4, for

example) teaches that the pressure controller can be pneumatically actuated, electric motor actuated, hydraulically actuated, or otherwise actuated. At col. 4, lines 35-50 and col. 5, lines 1-15, Mardian teaches that the pressure within the variable volume chamber is to be maintained substantially constant by sensing the pressure of the gas within the variable volume chamber and adjusting the volume rate of change of the variable volume chamber based on the sensed pressure. Mardian does not specifically state that his apparatus includes "a pressure detector to detect a parameter indicative of a pressure of the gas inside the variable volume chamber and to produce an output indicative thereof". It is noted, however, that such a pressure detector is inherently or at least obviously required to practice the step of sensing pressure and controlling volume change based on sensed pressure as taught by Mardian. Mardian's Fig. 1 embodiment includes a piston, which is a mechanically movable member to apply force to the variable volume chamber as recited in claims 31 and 32. Mardian's Fig. 3 embodiment includes a pressurized bellows, which is inherently within a pressurization region as recited in claim 26. Also, Mardian's apparatus has an inherent capability of being used according to the various intended uses recited in applicant's claims, such as being used to supply a chemical reactant or to supply a gas to a CVD process or to supply gas to an ALD process. When a rejection is based on an apparently inherent property of a prior art reference, a rejection based alternatively on 35 U.S.C. 102 or 103 is appropriate as discussed in the last paragraph of MPEP 2183. Mardian (see Fig. 6) also teaches the use of another variable volume chamber as recited in claims 15 and 30.

Claims 7-12 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mardian (6,787,463) taken in view of Horie (6,419,462) and Sturm (WO 99/04060). Mardian's Fig. 3 embodiment includes a bellows. Also, Mardian (see the sentence bridging cols. 2 and 3) teaches the use of pneumatic actuation of a pressure controller, but Mardian doesn't discuss the use of a pneumatically actuated bellows pressure controller. Horie (see Fig. 9 and col. 12, line 34 to col. 13, line 40, for example) and Sturm (see Fig. 7 and page 15, lines 18-26, for example), however, teach that a bellows-type pressure controller can be successfully and accurately controlled by using a gas source and/or a vacuum source to communicate with a pressurization region on the outside of a bellows. It would have been obvious to one skilled in the art to control the bellows of Mardian by means of a gas source and/or a vacuum source in the manner taught by Horie and Sturm, because Horie and Sturm teach that their bellows controllers will successfully accomplish the desired purpose of Mardian of controlling the pressure in a variable volume chamber.

Applicant's arguments have been considered but are not directed to the new grounds of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Richard Bueker

Richard Bueker
Primary Examiner
Art Unit 1763